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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,927	01/26/2004	Ramon Pinana Lopez	8139ES	1926
23688	7590	02/21/2006	EXAMINER	
Bruce E. Harang PO BOX 872735 VANCOUVER, WA 98687-2735			NGUYEN, DONGHAI D	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 02/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No.		Applicant(s)	
	10/707,927		LOPEZ, RAMON PINANA	
	Examiner		Art Unit	
	Donghai D. Nguyen		3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/8/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 08 January 2006 has been considered and made of record.

Drawings

2. The drawings were received on 8 January 2006. The Examiner accepts these drawings.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --A MULTI-MILLING METHOD FOR MANUFACTURING A PRINTED CIRCUIT BOARD--.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of the claimed invention directed to the multiple-milling method for making a printed circuit board; however, there is no positive method step for making the circuit board.

Further, the claims 1-6 are being incomplete for omitting essential steps, such omission

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amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are:
undercutting the printed circuit board and bending the cutting circuit board, etc.,

“said conductive layer” (claims 3-5, line 3) lacks antecedent basis.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,925,298 to Walles et al.

Regarding claim 1, Walles et al disclose a multiple-undercutting milling process for manufacturing printed circuits board comprising a substrate and a metallic material conductive printed circuits adhere thereto, allowing subsequent bending of the printed circuit up to 180° into a U-shaped without deteriorating the printed circuits adhered to the printed circuits board substrate (see Fig.6); said substrate having two opposite surfaces, a first surface for adhering the conductive metallic material and a second surface suitable for milling, comprising; preparing a substrate of printed circuit boards (10) with bending areas (18) allowing bending such printed circuits board consisting essentially of simultaneously undercutting multiple parallel strips (26 or 28, See Figs. 2A-B) on the second surface of the printed circuits substrate by means of a milling tool (See Col. 2, lines 37-38).

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Claims 3-5, Walles et al the conductive layer such as copper (see, Col. 2, line 26-27) having a thickness in ranges between 65-400 microns (See Fig. 1 and the discussion at Col. 2, lines 53-54). Note that the thickness of bending area or region being below 25 mils with 5 layers having equal thickness.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walles et al in view of US Patent 5,726,495 to Aihara et al.

Walles et al do not teach the milling tool of claim 2. Aihara et al teach a milling tool (21) comprises a roll having with multiple polishing strips on its surface (see Fig. 3) for forming a plurality of grooves on the surface of a component. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the milling machine of Walles et al by utilizing the milling tool taught by Aihara et al for a plurality of grooves on the surface of the printed circuit.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walles et al in view of US Patent 5,697,282 to Schakel et al.

Walles et al do not teach the milling tool of claim 6. Schakel et al teach a milling tool (22) comprises a roll (52) having with multiple polishing teeth (62) on its surface (see Fig. 3) for forming a plurality of uniform grooves on the surface of a substrate. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the milling machine of Walles et al by utilizing the milling tool taught by Schakel et al for a plurality of uniform grooves on the surface of the printed circuit.

Response to Arguments

11. Applicant amended to the claims 1-5 has not overcome all the rejection under 112 second paragraph (see Item 5).

12. Applicant's arguments filed 8 January 2006 have been fully considered but they are not persuasive. Applicant's argument that Walles et al fail to disclose certain features (see "Remarks" pages 8-9) of applicant's invention, it is noted that the features upon which applicant relies (i.e., "undercutting of multiple parallel tracks in one surface of the circuit board in single operation") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Further, the recitation "a printed ... for milling" (claim 1, lines 2-6) has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See

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In re Hirao, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

13. Applicant's arguments with respect to claims 2 and 6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghai D. Nguyen whose telephone number is (571)-272-4566. The examiner can normally be reached on Monday-Friday (9:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571)-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DN
February 8, 2006


MINH TRINH
PRIMARY EXAMINER